



## Control of Electricity Load in Future Smart Cities

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## **Control of Electricity Load in Future Smart Cities**

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Traditionally, electricity power production has been adjusted to balance the time-varying electricity load. However, a transition to a system based on an increasing, fluctuating and non-dispatchable renewable power implies that new methodologies for controlling the electricity load in future smart energy systems become crucial.

This talk describes methods for control of electricity loads in future smart cities. Smart cities offer possibilities for intelligent energy systems integration based on ICT. This includes methods for integrating large shares of, e.g., wind and solar power production. Hierarchies of aggregators and predictive controllers, for electricity loads in flexible demand side response in smart cities, are implemented to achieve a balance with the non-dispatchable energy production. Two distinct approaches are described: direct control of the load consumption of individual DERs, and indirect control by broadcasting an electricity price. The advantages and challenges of these two approaches are discussed, and examples of the suggested techniques are provided.